



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Serial No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name	
PO038311	ACI001-VC	3	1	Net 30	M1018A3.000W.250	1018 Angle 3.00" X0.250" Wall MATERIAL: ANGLE 44W ACCEPTABLE				20	11/14/2017	20		S009407	Stock	11/13/2017	\$ 2.59 / ft	0		\$51.89	Acier Ouellette Inc.	
		4	M1018B0.375x5.000		1010-1025 Steel Bar .375 X 5.000 : MATERIAL: AISI 1010- 1025 OR ASTM A36/A368/A569/A570 OR OR CSA G40-21 38W/44W/50W/60W/70W CSA G40-21 OR 38W/44W/50W/60W/70W receive ft			6		6		S009408	Stock	11/13/2017	\$ 11.35 / ft	0		\$68.12	Acier Ouellette Inc.			
		5	M1018R0.625		M1018R0.625 : MATERIAL: AISI 1018- 1025 ROUND BAR M1010S20GA AS PER MIL-S-7097 OR ASTM A108 receive ft			20		20		S009409	Stock	11/13/2017	\$ 1.04 / ft	0		\$20.79	Acier Ouellette Inc.			
		6	MT-4140QT-R0.750		AISI 4140 Quenched &Tempered Steel Round Bar 0.750" Dia. AISI 4140 QUENCHED & TEMPERED AS PER ASTM 4140 QT OR ASTM 4142 QT			10		10		S009410	Stock	11/13/2017	\$ 2.99 / ft	0		\$29.93	Acier Ouellette Inc.			
		7	MT-4140QT-R1.500		AISI 4140 Quenched &Tempered Steel Round Bar 1.500" Dia. AISI 4140 QUENCHED & TEMPERED AS PER ASTM 4140 QT OR ASTM 4142 QT			9.5		10		S009411	Stock	11/13/2017	\$ 9.85 / ft	0		\$94.54	Acier Ouellette Inc.			
		9	MT-4140QT-R1.750		AISI 4140 Quenched &Tempered Steel Round Bar 1.750" Dia. AISI 4140 QUENCHED & TEMPERED AS PER ASTM 4140 QT OR ASTM 4142 QT			5		5		S009412	Stock	11/13/2017	\$ 17.66 / ft	0		\$91.83	Acier Ouellette Inc.			
Total:										71		71									\$281.21	



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO038311

Supplier: ACI001-VC
Acier Ouellette Inc.
935 Boul. Du Havre
Valleyfield
QC
J6S 5L1 Canada
Phone: 800 667 4248
Fax: 450 377 5696

PO No: PO038311

PO Date: 11/9/17

Due Date: 11/14/17

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

NOV 09 2017

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments: QUOTATION # SOU0069540, SOU0069953,
SOU0069784, SOU0069784, SOU0068639

Items

Line Item	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	M5052H32S.063	-	5052-H32 .063 Sheet : MATERIAL: 5052-H32 ALUMINUM SHEET AS PER QQ-A-250/8 OR AMS-QQ-A-250/8 OR AMS 4016 OR ASTM B209 receive sf		Firmed	11/14/17	64 sf	0 sf	64 sf	\$3.7026562/sf	\$236.97
2	M4140HR0.375	-	4140 Round Bar .375 : AISI 4140H ROUND BAR PER AISI4140OR ASTM A304-02/-A-434- BC/-A193-03-GRADE B7/-A29-03/-A322-91 OR UNS#-G41400 MINIMUM ULTIMATE TENSILE STRENGTH=100 KSI MINIMUM YIELD TENSILE STRENGTH=66KSI receive ft		Firmed	11/14/17	12 ft	0 ft	12 ft	\$10.41666/ft	\$125.00
3	M1018A3.000W.250	-	1018 Angle 3.00" X0.250" Wall MATERIAL: ANGLE 44W ACCEPTABLE		Firmed	11/14/17	20 ft	0 ft	20 ft	\$2.5945/ft	\$51.89
4	M1018B0.375x5.000	-	1010-1025 Steel Bar .375 X 5.000 : MATERIAL: AISI 1010- 1025 OR ASTM A36/A366/A569/A570 OR OR CSA G40-21 38W/44W/50W/60W/70W CSA G40-21 OR 38W/44W/50W/60W/70W receive ft		Firmed	11/14/17	6 ft	0 ft	6 ft	\$11.3533/ft	\$68.12
5	M1018R0.625	-	M1018R0.625 : MATERIAL: AISI 1018- 1025 ROUND BAR		Firmed	11/14/17	20 ft	0 ft	20 ft	\$1.0395/ft	\$20.79



Dart Hawkesbury
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Hawkesbury, ON
K6A 1K7
Canada

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PURCHASE ORDER PO038311

Items

Line Item	Part	Rev	Description	Item Tax	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
			M1010S20GA AS PER MIL-S-7097 OR ASTM A108 receive ft								
6	MT-4140QT-R0.750	✓	AISI 4140 Quenched & Tempered Steel Round Bar 0.750" Dia. AISI 4140 QUENCHED & TEMPERED AS PER ASTM 4140 QT OR ASTM 4142 QT		Firmed	11/14/17	✓ 10 ft	0 ft	10 ft	\$1.0395/ft	\$10.40
7	MT-4140QT-R1.500	✓	AISI 4140 Quenched & Tempered Steel Round Bar 1.500" Dia. AISI 4140 QUENCHED & TEMPERED AS PER ASTM 4140 QT OR ASTM 4142 QT		Firmed	11/14/17	✓ 9.7 ft	0 ft	10 ft	\$9.8474/ft	\$95.52
8	MT-4140QT-R0.875	-	AISI 4140 Quenched & Tempered Steel Round Bar 0.875" Dia. AISI 4140 QUENCHED & TEMPERED AS PER ASTM 4140 QT OR ASTM 4142 QT		Firmed	11/14/17	10 ft	0 ft	10 ft	\$3.894/ft	\$38.94
9	MT-4140QT-R1.750	✓	AISI 4140 Quenched & Tempered Steel Round Bar 1.750" Dia. AISI 4140 QUENCHED & TEMPERED AS PER ASTM 4140 QT OR ASTM 4142 QT		Firmed	11/14/17	✓ 5 ft	0 ft	5 ft	\$17.66/ft	\$88.30
10	MT-HRS-R-7.000	-	Hot Rolled Steel Round Bar 7.000" dia. (cut to 3.5" length) material: hot rolled steel bar as per ASTM A36 or ASTM A1011 / 44W / ASTM A1018		Firmed	11/14/17	1.167 ft	0 ft	1 ft	\$289.71594/ft	\$338.10
Line Item Note cut to size as per quote sou0069540 4 pcs cut at 3.500"											
										Grand Total:	\$1,074.02

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents



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Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO038311

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

A handwritten signature in black ink, appearing to be "C. Lavoie", is written over the bottom right corner of the Order Notes section.

Plex 11/9/17 1:49 PM dart.lavoie.chantal



ACIER OUELLETTE INC.

Order - Sales

Copy

CO00061364

935, Boul. du Hâvre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 MU: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 MU: 514-336-4246 Ext.: 866-456-4242

Customer N°

CL10001056

Date

2017/11/10

Delivery date

2017/11/13

Your order N°

38311

Processed by

Josianne Bourdon

Salesman

Carrier

OUELLETTE VALLEYFIELD

Credit Terme

Net 30 Days

Billed to

DART AEROSPACE LTD

1270, ABERDEEN ST.

HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,

Att: CHANTAL LAVOIE Tél.: 613-632-5200

Delivery Route 5

Page

1

Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only				
				CMD	EXP	B/O	IN	I	S	C	OUT
1 ANGLE 3 X 3 X 1/4 RANDOM A-3314-V 1131 <i>anf</i>	98.00	20.00	PL_\$CLB	1.00							
1 X 20' HEAT : 5207971402											
2 FLAT CR 3/8 X 5 1018 RANDOM FCR-385-V 2913 <i>anf</i>	38.25	6.00	PL_\$CLB	1.00							
1 X 6' HEAT : 161503											
COUPE A LA SCIE											
SCIE 1		1.00	UN								
3 ROUND CR 5/8 1018 RANDOM RCR-58-V 5351 <i>anf</i>	20.80	20.00	PL_\$CLB	1.00							
1 X 20' R/L HEAT : 139624											
SURCHARGE ENERGETIQUE			\$	0.00							
FRAIS_ENERGETIQUE											

NIR : R-109516-6

Next Page...



ACIER OUELLETTE INC.
935, Boul. du Hâvre
Salaberry de Valleyfield (Québec) J6S 5L1
Tél.: 450-377-4248 Mt: 514-336-4248 Ext.: 800-667-4248
Fax: 450-377-5696 Mtl: 514-336-4246 Ext.: 866-456-4242

Order - Sales

Copy

CO00061371

Customer N° CL10001056
Date 2017/11/10

Delivery date 2017/11/13

Your order N° 38311

Processed by Josianne Bourdon

Salesman

Carrier

Credit Terme

OUELLETTE VALLEYFIELD

Net 30 Days

Billed to

DART AEROSPACE LTD
1270, ABERDEEN ST.
HAWKESBURY, Ontario, K6A 1K7

Shipped to

, Ontario,
Att: CHANTAL LAVOIE Tél.: 613-632-5200
Delivery Route 5

Page 1

Product Description	Weight	Qty	U/M	PCS NB			Internal Use Only			
				CMD	EXP	B/O	IN	I	S	C
1 ROUND 4140 HEAT TREAT 3/4 RANDOM R4140-34H-V 4949 <i>and</i> <i>1 X 10' HEAT: M52573</i> COUPE A LA SCIE SCIE 1	15.02	10.00	PL_\$CLB	1.00						
2 ROUND 4140 HEAT TREAT 1 1/2 RANDOM R4140-112H-V 4893 <i>1 X 97" DC HEAT: A162392</i> <i>and</i>	57.56	9.58	PL_\$CLB	1.00						
3 ROUND 4140 HEAT TREAT 1 3/4 RANDOM R4140-134H-V 4911 <i>1 X 5' DC HEAT: 166509</i> <i>and</i>	40.89	5.00	PL_\$CLB	1.00						

Conditions:
All sold and delivered materials remain the property of "Acier Ouellette Inc." until payment is made in full, complete and cashed. All test materials are at the buyer's expense. The warranty offered by "Acier Ouellette Inc." is the same as offered and honored by the manufacturer and his warranty is transferred by "Acier Ouellette Inc." to the client. The Buyer hereby accepts to respect the following conditions: 30 days from billing date and the buyer accepts to pay administration charges of 2% per month (24% per annum) on all past due amounts over 30 days. Any default in respect with this contract will lead to payment by acceleration and permits to the seller, at his choice to claim for the balance due or the repossession of the goods sold. All claims must be made within the (5) days with this document enclosed. Any merchandise that has been damaged, cut or modified cannot be returned. All goods returned must be with our authorization and are subject to a 25% restocking charge.

Prepared By:	Verified By:	Delivered By:	Time	Customer's Signature	Y	M	D
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Total (\$CAD) 241.54
Deposit 0.00
Balance 241.54

Eaton Steel Bar Company Inspection Certificate 1626286

EN 10204:2004-3.1

BOL	Ship Date	Customer PO	Item	Customer Item	Item Description
207240	06-Mar-2017	B86205	11444 rev 003	V016242	3/4 HR RD 4140/42M 20M2in S80 OTSF FG MST

All bundles listed below were produced using steel from Heat M62573 issued by GENDAU-MONROE and were completed from Eaton Steel Job 000632.

Chemistry	Description	Value	Units	Heat Treating	Description	Value	Units
C	Carbon	0.40000	PKGT	TEMPER T8P F	Temper Temp in Fahrenheit	500 - 2500	DEGF
Mn	Manganese	0.85000	PKGT	AUSTEN T8P F	Austenitize Temp in Fahrenheit	1600 - 1700	DEGF
P	Phosphorus	0.01000	PKGT	SR TEMP F	Stress Relief Temp in Fahrenheit	500 - 2500	DEGF
S	Sulfur	0.02400	PKGT	MONITISM-HT	Magnetism in Gauss	0 - 20	GAUSS
Si	Silicon	0.25000	PKGT	TIME AT T8P	Time at Temperature	Report	
Ni	Nickel	0.12000	PKGT	QUENCH MEDIA	Quench Media Requirements	PW/O	
Cr	Chromium	0.96000	PKGT	STRESS FREE	Cert stress free	CERTIFIED	
Mo	Molybdenum	0.18000	PKGT	HT1140-430F	Quench & Temper	CONFORMS	
Al	Aluminum	0.03000	PKGT	HT1140-430F	Description	Value	Units
Cu	Copper	0.17000	PKGT	HEAT TREATING	Melted in Country	USA	
V	Vanadium	0.00200	PKGT	ROLLED COUNTRY	Rolled in Country	USA	
Co	Columbium	0.00200	PKGT	RED RATIO	Reduction Ratio	81.50	RD
N	Nitrogen	0.00000	PKGT	ASTM Standard	Description	Value	Units
P+S	Element Sum Limit	0.03400	PKGT	A193/193M-01	Grade B7	CONFORMS	
D1	Ideal Diameter	5.07000	IN	A193-90a-BC	ASTM BC Tensile and Yield Properties	CONFORMS	
Chemistry	Description	Value	Units	Structure	Description	Value	Units
MACRO ETC	Report macro etch results			PERCENT TM	Percent Tempered Martensite	80 - 100	PCT
Geometry	Description	Value	Units	MICROSTRUCTURE	Reported Microstructure	TM	
DIMASTER	Diameter	0.7420 - 0.7580	IN	Tag Number	Qty/Units	Length	
		Value	Units	022-1921471	305 LBS	20FT	

ASTM A304

06-12/11/13

Bundle tags with Eaton Steel identifiers reference the steel grade, heat, purchase order number, part number, product description and weight. Tested and certified in accordance with Eaton Steel's Quality Manual QM-00001 / Rev J / 2/29/13

We hereby certify the above to be in conformance, and a true copy of data represented in company records. This steel was not subject to weld repair or exposed to mercury while in the possession of Eaton Steel.



GERDAU SPECIAL STEEL NORTH AMERICA
5591 MORRILL ROAD
JACKSON, MICHIGAN 49301

CERTIFIED MATERIAL TEST REPORT

CUSTOMER ORDER NUMBER	CUSTOMER PART NUMBER	SALE ORDER NUMBER	DATE
142324	1012462/4140EFD	M52573 283416 101	11/05/13

REPORT TO

DAN MCNAUGHTON
EATON STEEL CORPORATION
10221 CAPITAL
OAK PARK, MI 48237

EATON STEEL CORPORATION
VULCAN HEAT TREATING
10 CROSSCREEK TRAIL
PELHAM, AL 35124

ORDERED

QUANTITY	SIZE	UNIT	GRADE	LENGTH
4140	0 3/4"	RND	20'	2"

ITEM 1012462 REV 1 DTD 03/05/12; A29/A29M-12; A322-07

CHEMICAL ANALYSIS

C	Mn	P	S	SI	NI	Cr	Mo	Cu	Sn	Al
0.40	0.85	0.010	0.024	0.25	0.12	0.96	0.18	0.17	0.008	0.030
V	Nb									
0.002	0.002									

GRAIN SIZE SPECIFICATION ASTM E112 FINE GRAIN 5-8

HARDENABILITY SPECIFICATION ASTM A255/A304

THEORETICAL																								
J1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32	34
56	56	56	56	56	56	56	54	53	52	50	48	46	44	43	42	40	38	36						

DI CALCULATION SPECIFICATION CAT 1E0024

5.07

REDUCTION RATIO SPECIFICATION ITEM 1012462

RATIO= 51.5 TO 1.0

PAGE 1
We certify that these data are correct and in compliance with specified requirements.

Gerdau Monroe
3000 East Front Street
Monroe, MI 48161

Wendy J. Crato
Quality Assurance Department

CONTINUED ON PAGE 2



GERDAU SPECIAL STEEL NORTH AMERICA
3531 MORRILL ROAD
JACKSON, MICHIGAN 49101

CERTIFIED MATERIAL TEST REPORT

CUSTOMER ORDER NUMBER	CUSTOMER PART NUMBER	DATE ORDERED	DATE ORDER RECEIVED	DATE
142324	1012462/4140EFVD	M52573	283416 101	11/05/13
		Danieli Cast		

REPORT TO

DAN MCNAUGHTON
EATON STEEL CORPORATION
10221 CAPITAL
OAK PARK, MI 48237

EATON STEEL CORPORATION
VULCAN HEAT TREATING
10 CROSSCREEK TRAIL
PELHAM, AL 35124

ORDERED

GRADE	SIZE	RND	LENGTH
4140	0 3/4"		20' 2"
ITEM 1012462 REV 1 DTD 03/05/12; A29/A29M-12; A322-07			

RESIDUAL MAX SPECIFICATION ITEM 1012462

P+S = 0.0340

RESIDUAL MIN SPECIFICATION ITEM 1012462


P+S = 0.0340

ASTM E381 MACRO ETCH SATISFACTORY: S1/R1/C1; MEETS SAE J422
S5/05 RATING (WORST FIELD);
** MATERIAL 100% MELTED AND MANUFACTURED IN THE U.S.A. BY THE ELECTRIC
ARC FURNACE AND CONTINUOUS CASTING METHOD. THE PRODUCT HAS NOT
BEEN REPAIRED BY WELDING AND THIS MATERIAL HAS NOT BEEN EXPOSED
TO MERCURY OR TO ANY OTHER METAL ALLOY THAT IS LIQUID AT AMBIENT
TEMPERATURES DURING PROCESSING OR WHILE IN OUR POSSESSION.
GERDAU MONITORS ALL INCOMING SCRAP AND ALL HEATS OF STEEL TO ENSURE THAT
PRODUCTS SHIPPED ARE FREE OF RADIOACTIVE MATERIAL.

PAGE 2 OF 2
We certify that these data are correct and in compliance with specified requirements.

Gerdau Monroe
1000 East Front Street
Monroe, MI 48161

Wendy J. Craig
Wendy J. Craig
Quality Assurance Representative

		Vulcan Thermal Products 10 Cross Creek Trail Portland, OR 97204 Tel: (503) 933-1100 Fax: (503) 933-1100	
JOB MATERIAL CERTIFICATION		Job No: 344313 Container: S7521276 S7525286	
Job Information		Certified Date: 12/7/13	
Test Results			
Test No: 25756 Test: Quench & Temper Physical (Lb)	Temperature 143.200	Exposition 17.4	Exposition 40
Quench & Temper Physical Results	Quench 143.200	Tempering 17.4	Tempering 40
Test No: 25757 Test: Quench & Temper Information (Lb)	Quench 143.200	Tempering 17.4	Tempering 40
Quench & Temper Information Results	Quench 143.200	Tempering 17.4	Tempering 40
Signature: <i>David Christensen</i> Date: 12/7/13			
Christensen, David - Supervisor			
Page 4 of 4			



**NIAGARA
LASALLE**
CORPORATION

1412 150th Street
Hammond IN 46327-1799

CERTIFICATION

CERTIFICATE	Rev
H174279	3
DATE	10/14/16
PAGE	7

PURCHASE ORDER B96752	
ORDER 915827-1	
CUSTOMER ITEM V012142	ITEM 141500240Q04A
GRADE QT4140	SHAPE Round
SIZE 1.5000	SIZE MM 38.1000 MM
LENGTH 20' 0" / 24' 0"	LENGTH MM 6096 / 7315.2

4140/42 CA/AL-TRT QT-HR-STRESS FREE 130K TS-110K YS (.02% 100K) 16% EL 50% R/A SURFACE HBN 269/321 Spec/Rev: ASME SA193/SA193M GR-B7 Spec/Rev: ASTM A193/A193M-14 GR-B7 Spec/Rev: ASTM A29/A29M-15 Spec/Rev: ASTM A434-06(2012) CL-BC

HEAT		GRAIN PRACTICE		SOURCE / MELTED				CAST		REDUCTION RATIO		DI					
A162392		FINE(5-8)		STEEL DYNAMICS (USA)				BLOOM		79.2:1		5.86					
CHEMISTRY																	
C	MN	P	S	SI	NI	CR	MO	CU	AL	V							
0.420	0.900	.013	.015	0.240	0.120	0.980	.200	.250	.030	.003							
N		TE		AS		PB		SE		BI		B		NB			
.008		N/A		N/A		N/A		N/A		N/A		.0005		N/A			
MECHANICAL																	
JOB		TENSILE		.2% YIELD		ELONG		R OF A		HARDNESS		.02% YIELD		SR TEMP			
HS43559		149,434 PSI		133,398 PSI		17.40		53.10		HBN = 302		128,646					
QUENCH & TEMPER																	
JOB		MACRO		SURFACE		AUSTENITIZED			TEMPERED			STRESS					
						TEMPERATURE	TIME	QUENCH	TEMPERATURE	TIME	TEMPERATURE	TIME					
HS43559		SATISFACTORY		HBN = 311		1650F		6.0 MIN		WATER		1100F		4.5 HRS		STRESS FREE	
HARDENABILITY																	
01	02	03	04	05	06	08	10	12	14	16	20	24	28	32			
57	57	57	57	57	57	57	57	54	51	50	48	47	46	44	41		
LOT																	
LOT		JOB		WEIGHT (LBS)		PIECES		LOT		JOB		WEIGHT (LBS)		PIECES			
5239867		HS43559		5,100		38		5240385		HS43559		4,700		35			
5240428		HS43559		3,772		28		5240480		HS43559		4,070		30			

17/4/13

WE, hereby certify that these goods were produced in compliance with all applicable requirements of sections 6, 7, and 12 of the Fair Labor Standards Act, as amended, and all regulations and orders of the United States Department of Labor issued under section 14 thereof. Material was not exposed to mercury or any metal alloy that is liquid at ambient temperature during processing or while in our possession. No weld repairs performed on the above material.

CERTIFICATE OF TEST

By:

Walter P. Kretzler

Walter P. Kretzler - Director of Q.A./Chief Metallurgist

Eaton Steel Bar Company Inspection Certificate 1601418

EN 10204:2004-3.1

Customer	BOL	Ship Date	Customer PO	Item	Customer Item	Item Description
	201063	27-Oct-2016	B96887	11132 rev 004	V016262	1-3/4 HR RD 4140/42HM 24H SBO QTSF FG HST

All bundles listed below were produced using steel from Heat 165509 issued by ALTON STEEL and were completed from Eaton Steel Job 799489.

Chemistry	Description	Value	Units	Heat Treating	Description	Value	Units
C	Carbon	0.4100	PGMT	TEMPER TEMP F	Temper Temp in Fahrenheit	500 - 2500	DEGF
Mn	Manganese	0.8900	PGMT	AUSTENITIC TEMP F	Austenitizing Temp in Fahrenheit	1600 - 1700	DEGF
P	Phosphorus	0.0140	PGMT	SR TEMP F	Stress Relief Temp in Fahrenheit	500 - 2500	DEGF
S	Sulfur	0.02200	PGMT	MAGNETIC-IT	Magnetism in Gauss	0 - 20	GN
Si	Silicon	0.2300	PGMT	TIME AT TEMP	Time at Temperature	Report	
Ni	Nickel	0.10900	PGMT	QUENCH MEDIA	Quench Media Requirements	P&W/O	
Cr	Chromium	0.84600	PGMT	STRESS FREE	Cart stress free	CERTIFIED	
Mo	Molybdenum	0.16200	PGMT	HT1140-4207	Quench & Temper	CONFORMS	
Al	Aluminum	0.00100	PGMT	MILL PROCESSING	Description	Value	Units
Cu	Copper	0.23000	PGMT	REF-600000	Melted in Country	USA	
V	Vanadium	0.02800	PGMT	ROLLED COUNTRY	Rolling in Country	USA	
Cb	Colubium	0.00200	PGMT	RED RATIO	Reduction Ratio	20.37	RED
N	Nitrogen	0.01000	PGMT	ASTM Standard	Description	Value	Units
P+S	Element Sum Limit	0.03600	PGMT	A193/193M-01	Grade B7	CONFORMS	
DI	Ideal Diameter	4.97000	IN	A134-90A-BC	ASTM DC Tensile and Yield properties	CONFORMS	
Cleanliness	Description	Value	Units	STRUCTURE	Description	Value	Units
MACRO ETCH	Report macro etch results.	Value	Units	PERCENT TM	Percent Tempered Martensite	80 - 100	PCT
Geometry	Description	Value	Units	MICROSTRUCTURE	Reported Microstructure	TM	
Diameter	Diameter	1.7344 - 1.7656	IN	Tag Number	Qty Units	Length	
Jominy	Description	Value	Units	022-1875938	4155 LBS	23ft36in/24ft3in	
J1	1/16 inch from Quenched End	56	HRC				
J2	2/16 inch from Quenched End	56	HRC				
J3	3/16 inch from Quenched End	56	HRC				
J4	4/16 inch from Quenched End	56	HRC				
J5	5/16 inch from Quenched End	56	HRC				
J6	6/16 inch from Quenched End	55	HRC				
J7	7/16 inch from Quenched End	54	HRC				
J8	8/16 inch from Quenched End	52	HRC				
J9	9/16 inch from Quenched End	51	HRC				
J10	10/16 inch from Quenched End	50	HRC				
J11	11/16 inch from Quenched End	0.06000	HRC				
J12	12/16 inch from Quenched End	47	HRC				
J13	13/16 inch from Quenched End	45	HRC				
J14	14/16 inch from Quenched End	43	HRC				
J15	15/16 inch from Quenched End	42	HRC				
J16	16/16 inch from Quenched End	41	HRC				
J17	17/16 inch from Quenched End	40	HRC				
J18	18/16 inch from Quenched End	37	HRC				
J19	19/16 inch from Quenched End	35	HRC				
J20	20/16 inch from Quenched End	35	HRC				
J21	21/16 inch from Quenched End	35	HRC				
J22	22/16 inch from Quenched End	35	HRC				
J23	23/16 inch from Quenched End	35	HRC				
J24	24/16 inch from Quenched End	35	HRC				
J25	25/16 inch from Quenched End	35	HRC				
J26	26/16 inch from Quenched End	35	HRC				
J27	27/16 inch from Quenched End	35	HRC				
J28	28/16 inch from Quenched End	35	HRC				
J29	29/16 inch from Quenched End	35	HRC				
J30	30/16 inch from Quenched End	35	HRC				
J31	31/16 inch from Quenched End	35	HRC				
J32	32/16 inch from Quenched End	35	HRC				
J33	33/16 inch from Quenched End	35	HRC				
J34	34/16 inch from Quenched End	35	HRC				
J35	35/16 inch from Quenched End	35	HRC				
J36	36/16 inch from Quenched End	35	HRC				
J37	37/16 inch from Quenched End	35	HRC				
J38	38/16 inch from Quenched End	35	HRC				
J39	39/16 inch from Quenched End	35	HRC				
J40	40/16 inch from Quenched End	35	HRC				
J41	41/16 inch from Quenched End	35	HRC				
J42	42/16 inch from Quenched End	35	HRC				
J43	43/16 inch from Quenched End	35	HRC				
J44	44/16 inch from Quenched End	35	HRC				
J45	45/16 inch from Quenched End	35	HRC				
J46	46/16 inch from Quenched End	35	HRC				
J47	47/16 inch from Quenched End	35	HRC				
J48	48/16 inch from Quenched End	35	HRC				
J49	49/16 inch from Quenched End	35	HRC				
J50	50/16 inch from Quenched End	35	HRC				
J51	51/16 inch from Quenched End	35	HRC				
J52	52/16 inch from Quenched End	35	HRC				
J53	53/16 inch from Quenched End	35	HRC				
J54	54/16 inch from Quenched End	35	HRC				
J55	55/16 inch from Quenched End	35	HRC				
J56	56/16 inch from Quenched End	35	HRC				
J57	57/16 inch from Quenched End	35	HRC				
J58	58/16 inch from Quenched End	35	HRC				
J59	59/16 inch from Quenched End	35	HRC				
J60	60/16 inch from Quenched End	35	HRC				
J61	61/16 inch from Quenched End	35	HRC				
J62	62/16 inch from Quenched End	35	HRC				
J63	63/16 inch from Quenched End	35	HRC				
J64	64/16 inch from Quenched End	35	HRC				
J65	65/16 inch from Quenched End	35	HRC				
J66	66/16 inch from Quenched End	35	HRC				
J67	67/16 inch from Quenched End	35	HRC				
J68	68/16 inch from Quenched End	35	HRC				
J69	69/16 inch from Quenched End	35	HRC				
J70	70/16 inch from Quenched End	35	HRC				
J71	71/16 inch from Quenched End	35	HRC				
J72	72/16 inch from Quenched End	35	HRC				
J73	73/16 inch from Quenched End	35	HRC				
J74	74/16 inch from Quenched End	35	HRC				
J75	75/16 inch from Quenched End	35	HRC				
J76	76/16 inch from Quenched End	35	HRC				
J77	77/16 inch from Quenched End	35	HRC				
J78	78/16 inch from Quenched End	35	HRC				
J79	79/16 inch from Quenched End	35	HRC				
J80	80/16 inch from Quenched End	35	HRC				
J81	81/16 inch from Quenched End	35	HRC				
J82	82/16 inch from Quenched End	35	HRC				
J83	83/16 inch from Quenched End	35	HRC				
J84	84/16 inch from Quenched End	35	HRC				
J85	85/16 inch from Quenched End	35	HRC				
J86	86/16 inch from Quenched End	35	HRC				
J87	87/16 inch from Quenched End	35	HRC				
J88	88/16 inch from Quenched End	35	HRC				
J89	89/16 inch from Quenched End	35	HRC				
J90	90/16 inch from Quenched End	35	HRC				
J91	91/16 inch from Quenched End	35	HRC				
J92	92/16 inch from Quenched End	35	HRC				
J93	93/16 inch from Quenched End	35	HRC				
J94	94/16 inch from Quenched End	35	HRC				
J95	95/16 inch from Quenched End	35	HRC				
J96	96/16 inch from Quenched End	35	HRC				
J97	97/16 inch from Quenched End	35	HRC				
J98	98/16 inch from Quenched End	35	HRC				
J99	99/16 inch from Quenched End	35	HRC				
J100	100/16 inch from Quenched End	35	HRC				
J101	101/16 inch from Quenched End	35	HRC				
J102	102/16 inch from Quenched End	35	HRC				
J103	103/16 inch from Quenched End	35	HRC				
J104	104/16 inch from Quenched End	35	HRC				
J105	105/16 inch from Quenched End	35	HRC				
J106	106/16 inch from Quenched End	35	HRC				
J107	107/16 inch from Quenched End	35	HRC				
J108	108/16 inch from Quenched End	35	HRC				
J109	109/16 inch from Quenched End	35	HRC				
J110	110/16 inch from Quenched End	35	HRC				
J111	111/16 inch from Quenched End	35	HRC				
J112	112/16 inch from Quenched End	35	HRC				
J113	113/16 inch from Quenched End	35	HRC				
J114	114/16 inch from Quenched End	35	HRC				
J115	115/16 inch from Quenched End	35	HRC				
J116	116/16 inch from Quenched End	35	HRC				
J117	117/16 inch from Quenched End	35	HRC				
J118	118/16 inch from Quenched End	35	HRC				
J119	119/16 inch from Quenched End	35	HRC				
J120	120/16 inch from Quenched End	35	HRC				
J121	121/16 inch from Quenched End	35	HRC				
J122	122/16 inch from Quenched End	35	HRC				
J123	123/16 inch from Quenched End	35	HRC				
J124	124/16 inch from Quenched End	35	HRC				
J125	125/16 inch from Quenched End	35	HRC				
J126	126/16 inch from Quenched End	35	HRC				
J127	127/16 inch from Quenched End	35	HRC				
J128	128/16 inch from Quenched End	35	HRC				
J129	129/16 inch from Quenched End	35	HRC				
J130	130/16 inch from Quenched End	35	HRC				
J131	131/16 inch from Quenched End	35	HRC				
J132	132/16 inch from Quenched End	35	HRC				
J133	133/16 inch from Quenched End	35	HRC				
J134	134/16 inch from Quenched End	35	HRC				
J135	135/16 inch from Quenched End	35	HRC				
J136	136/16 inch from Quenched End	35	HRC				
J137	137/16 inch from Quenched End	35	HRC				
J138	138/16 inch from Quenched End	35	HRC				
J139	139/16 inch from Quenched End	35	HRC				
J140	140/16 inch from Quenched End	35	HRC				
J141	141/16 inch from Quenched End	35	HRC				
J142	142/16 inch from Quenched End	35	HRC				
J143	143/16 inch from Quenched End	35	HRC				
J144	144/16 inch from Quenched End	35	HRC				
J145	145/16 inch from Quenched End	35	HRC				
J146	146/16 inch from Quenched End	35	HRC				
J147	147/16 inch from Quenched End	35	HRC				
J148	148/16 inch from Quenched End	35	HRC				
J149	149/16 inch from Quenched End	35	HRC				
J150	150/16 inch from Quenched End	35	HRC				
J151	151/16 inch from Quenched End	35	HRC				
J152	152/16 inch from Quenched End	35	HRC				
J153	153/16 inch from Quenched End	35	HRC				
J154	154/16 inch from Quenched End	35	HRC				
J155	155/16 inch from Quenched End	35	HRC				
J156	156/16 inch from Quenched End	35	HRC				
J157	157/16 inch from Quenched End	35	HRC				
J158	158/16 inch from Quenched End	35	HRC				
J159	159/16 inch from Quenched End	35	HRC				
J160	160/16 inch from Quenched End	35	HRC				
J161	161/16 inch from Quenched End	35	HRC				
J162	162/16 inch from Quenched End	35	HRC				
J163	163/16 inch from Quenched End	35	HRC				
J164	164/16 inch from Quenched End	35	HRC				
J165	165/16 inch from Quenched End	35	HRC				
J166	166/16 inch from Quenched End	35	HRC				
J167	167/16 inch from Quenched End	35	HRC				
J168	168/16 inch from Quenched End	35	HRC				
J169	169/16 inch from Quenched End	35	HRC				
J170	170/16 inch from Quenched End	35	HRC				
J171	171/16 inch from Quenched End						

Lab Services Report



10221 Capital Avenue
Oak Park, MI 48237
(248)543-3578 telephone
(248)398-1434 facsimile

Bill To: Apollo Heat Treating

10400 Capital Avenue

Oak Park, MI

Attn: Randy Call

rcall@apolohp.com

Ship To: Apollo Heat Treating

10400 Capital Avenue

Oak Park, MI

Report Date: 10/14/2016

Report ID: 16-3002

Request ID:

This report contains results for the indicated services performed on the following sample(s)

Part No	11132 QTSF	Finish	HR	Shape	Round
Size	1-3/4	Grade	4140	Work Order	709489
Titan Sample ID	Heat	Customer Sample ID	NO 799489 Jcs 2167		
16-3002-1	168509				

Steve Avery

Report Approved By: Steve Avery

Mechanical Testing

ASTM E8M-15a

ASTM E10-15

Mechanical Testing

ASTM E8M-15a

ASTM E10-15

Sample ID	Ultimate Tensile, psi	0.2% Offset Yield, psi	Reduction of Area, %	Requesting Party	How Surface
16-3002-1	151,300	138,300	19	55	321

Test Comments

Mechanicals tested at 1140 F±15

Any services within a section marked with * are not part of Tian Meibang's current A2LA accreditation.
All testing performed by Tian Meibang was done at ambient (room) temperature.



10400 Capital Avenue • Oak Park, Michigan 48237 • (248) 399-3434


CERTIFICATION OF HEAT TREATMENT

Date: 10 / 17 / 2016
Certification Number: 16 - 0467
Customer's Order Number: 799489
Part Number: 10902 - 11132
Heat Number: 166509
Heat Treat Job Number: 2167

Material: 4140
Quantity: 206 Pcs.
Weight: 41,080 Lbs.
Description: 1.7500" Diameter x 24" 2" Length
Per Specification: ESH HT4140 - 42QT

	Temperature	Time at Heat	Coolant
Normalized	N/A		
Preheat	N/A		
Austenitized/Hardened	1600 °F	45 Minutes	
Spray Quenched	102.8 °F - 104.8 °F	N/A	Water
Temper	1220 °F	1 Hour 15 Minutes	Air Cooled to Ambient
Temper	N/A		

Method of heat treat monitor, set point thermocouple (Type K). Equipment calibrated per AMS2750E.
We hereby certify the above material has been treated in the manner described are correct as
contained in the records of Apollo Heat Treating and Processing, LLC.


Randy L. Call
Plant Manager
Apollo Heat Treating & Processing, LLC



GERDAU

CA-MIL-WHITBY

1 GERDAU CT

WHITBY, ON L1N 5T1

Canada

CERTIFIED MATERIAL TEST REPORT

A-3314-20 48607

17/11/23

Page 1/1

CUSTOMER SHIP TO		CUSTOMER BILL TO		GRADE	SHAPE/SIZE	DOCUMENT ID
LES ACIERS TRANSHEC 1997 LTÉE 935 DU HAVRE BLVD SALABERRY-DE-VALLEYFIELD QC J6S 5L1 Canada		LES ACIERS TRANSHEC 1997 LTÉE 4054 BOUL. LE CORNUSIER LAVALLÉE HTL 582 Canada		GCMLT1	Angle / 3X3X1/4	0000051290
SALES ORDER 5149135000510		CUSTOMER MATERIAL N°		LENGTH 20'00"	WEIGHT 6.370 LB	HEAT / BATCH 5207971402
CUSTOMER PURCHASE ORDER NUMBER CA17906F5N3QAP		BILL OF LADING 1302-000006-016		DATE 08/28/2017		SPECIFICATION / DATE OF REVISION ASTM A529-14, A572-15 ASTM A579-14, A590-14, ASME SA-36 ASTM A709-15, AISI 4130-12 CSA G40.20-13/G40.21-13

CHEMICAL COMPOSITION									
C	Mn	P	S	Si	Ni	Cr	V	Nb	
0.24	0.80	0.019	0.026	0.20	0.10	0.17	0.014	0.001	

MECHANICAL PROPERTIES									
Elong.	CP	YTS	UTS	YTS	UTS	YS0.2%	YS	MPa	
30.00	8.000	71724	72028	495	497	54000	372	372	
31.30	8.000					54126	373	373	

COMMENTS / NOTES

This grade meets the requirements for the following grades:
ASTM Grades: A56, A57, A59, A572-50, A709-36, A709-50
CSA Grades: 40W, 50W
AASHTO Grades: M220-36, M270-50
ASME Grades: SA-36

anf 17/11/23

The above figures are certified chemical and physical test records as contained in the permanent records of company. We certify that these data are correct and in compliance with specified requirements. This material, including the bolters, was melted and manufactured in Canada. CMTR complies with EN 10204 T1.

Mackenzie

BRAND: CA-MIL-WHITBY
QUALITY DIRECTOR

Phone: (416) 361-1111 Email: Whitby@kdmtr.com

Whitby

1100 ARBORVIEW
QUALITY ASSURANCE MGR

Phone: (416) 361-1111 Email: Whitby@kdmtr.com

PO. 8319

Customer Name

Customer PO#

Invoice No

Shipper No

Heat Number

ACIER OUELLETTE INC. DIV SALABER

AC8919

90593

84846

161503-



NUEVA INCAL, S. A.
aceros calibrados

Goikobarra, 24 - Apartado 13
48300 GERNIKA - BIZKAIA Spain
Teléfonos (34) 94 625 17 12 - 16
Fax (34) 94 625 46 27
nuevainca@nuevaincal.com
www.nuevaincal.com



CERTIFICADO DE CALIDAD

Destinatario :

Material :

1018 COLD ROLLED

CERTIFICAMOS :

Que el material suministrado con cargo a los pedidos de referencia y amparado por nuestro albarán N° EX/4.511 y Fra. N° A/21.801 corresponden a los análisis y fusiones siguientes de acuerdo con la norma EN 10204 / 2.2:

S./Pedidos N°	Composición Química de la colada								Caract. mecánicas laminado		
	MATERIAL	CALIDAD	COLADA	C. %	Mn. %	Si. %	S. %	P. %	Re N/mm2	Rm N/mm2	A %
MON-54349	1 X 1		583061	0,17	0,72	0,16	0,018	0,019	321,00	496,00	29,00
MON-54349	1-1/4 X 1-1/4		7855	0,17	0,75	0,19	0,009	0,016	448,00	293,00	37,20
MON-54349	1-1/2 X 1/4		47395	0,15	0,76	0,16	0,032	0,014	349,00	499,00	37,00
MON-54349	2 X 1/4		580842	0,16	0,72	0,17	0,023	0,014	330,00	500,00	30,00
MON-54349	4 X 2		162442	0,20	0,70	0,17	0,004	0,017	545,00	573,00	15,00
MON-54349	3-1/2 X 1/2		161629	0,16	0,79	0,18	0,002	0,021	329,21	454,32	24,66
MON-54349	5 X 3/8		161503	0,17	0,80	0,16	0,004	0,023	548,00	576,00	13,00
MON-54349	5 X 1		161962	0,16	0,84	0,18	0,006	0,018	548,00	575,00	15,00
MON-54349	5 X 1-1/2		161915	0,17	0,78	0,19	0,004	0,021	544,00	572,00	14,00
MON-54349	4 X 1		580133	0,16	0,73	0,18	0,022	0,015	320,00	490,00	32,00
MON-54349	6 X 3/8		160518	0,16	0,68	0,16	0,007	0,016	552,00	579,00	8,00
MON-54349	6 X 1/2		161361	0,18	0,73	0,23	0,006	0,017	558,00	586,00	13,00
MON-54349	6 X 5/8		152780	0,16	0,85	0,19	0,004	0,011	544,00	570,00	9,00
MON-54349	6 X 1		161367	0,16	0,82	0,17	0,004	0,017	551,00	578,00	14,00
MON-54349	8 X 1/2		162494	0,16	0,79	0,17	0,009	0,012	567,00	595,00	14,00
MON-54349	8 X 1		161036	0,20	0,74	0,19	0,006	0,016	565,00	593,00	14,00

Gernika, 30 de Noviembre de 2.016

Responsable de Calidad



ARAN Y LUPARDO, 2
48490 UGAO-MIRAVALLS/VIZCAYA (SPAIN)
Tfno.: 946480211
Fax: 946480128
Email: calpradera@calibradospradera.es
www.calibradospradera.es

RCK-58-20

TRA 1469 53°
48493
3P

CERTIFICADO DE CALIDAD/QUALITY REPORT

De acuerdo a /Made according to:

EN 10204/DIN 50049

3.1

Nº CERTIFICADO / CERTIFICATE NR.: 47704

ALBARAN 47704
Delivery Note Nr.

CLIENTE LES ACIERS TRANSBEC (1997) L.TÉE
CUSTOMER

Norma : EN 10277

Productos Calibrados de acero. Condiciones técnicas de suministro.

Norm :

Bright steel products. Technical delivery conditions.

PRODUCTO SOLICITADO / PRODUCT ACCORDING ASTM A108

Nº PEDIDO Purchase Order	DESCRIPCIÓN Description	KGS.	TOLERANCIA TOLERANCE	OF	MEDIDA Measurement
PAR-47152	12L14 HEX. ESTIRADO 31,75 (1 1/4")	996	-0,076	915907	31,75
PAR-47472	12L14 RED. ESTIRADO 50,80 (2")	1.034	-0,076	916489	50,80
PAR-47851	12L14 RED. ESTIRADO 50,80 (2")	1.090	-0,076	916489	50,80
PAR-47851	1018 RED. ESTIRADO 31,75 (1 1/4")	994	-0,051	139211	31,75
MUP-47856	12L14 RED. ESTIRADO 25,40 (1")	3.000	-0,051	139256	25,40
PAR-47786	1018 RED. ESTIRADO 30,16 (1 3/16")	1.090	0,051	139297	30,16
PAR-47786	12L14 RED. ESTIRADO 19,05 (3/4")	2.002	-0,051	202433	19,05
MUP-47861	12L14 HEX. ESTIRADO 31,75 (1 1/4")	994	-0,076	915907	31,75
OU-47812	1018 RED. ESTIRADO 9,53 (3/8")	1.040	-0,051	139333	9,53
SM-47572	1018 RED. ESTIRADO 9,53 (3/8")	1.040	-0,051	139477	9,53
SM-47572	1018 RED. ESTIRADO 31,75 (1 1/4")	1.988	-0,051	139481	31,75
AQM-47672	1018 RED. ESTIRADO 31,75 (1 1/4")	1.990	-0,051	139547	31,75
OU-47832	12L14 RED. ESTIRADO 19,05 (3/4")	1.998	-0,051	202313	19,05
OU-47832	1018 RED. ESTIRADO 15,88 (5/8")	2.004	-0,051	139624	15,88
OU-47832	1018 RED. ESTIRADO 31,75 (1 1/4")	996	-0,051	139627	31,75
MUP-47896	1018 RED. ESTIRADO 15,88 (5/8")	1.010	-0,051	139776	15,88

Composición química de la colada / Chemical Analysis of Heat

MEDIDA Measurement	OF	COLADA Cast Nr.	% C	% Cr	% Cu	% Mn	% Mo	% Ni	% P	% Pb	% S	% Si	
31,75	0,00	915907	39680 W	0,070	0,090	0,230	1,110	0,030	0,110	0,051	0,210	0,329	0,020
50,80	0,00	916489	41232 IS	0,060	0,000	0,000	1,120	0,000	0,000	0,043	0,220	0,318	0,010
50,80	0,00	916489	41232 IS	0,060	0,000	0,000	1,120	0,000	0,000	0,043	0,220	0,318	0,010
31,75	0,00	139211	41410 AG	0,165	0,000	0,000	0,758	0,000	0,000	0,016	0,000	0,021	0,220
25,40	0,00	139256	41300 AG	0,060	0,086	0,014	1,130	0,006	0,023	0,063	0,300	0,310	0,003
30,16	0,00	139297	41411 AG	0,165	0,000	0,000	0,758	0,000	0,000	0,016	0,000	0,021	0,220
19,05	0,00	202433	41406 AA	0,071	0,046	0,019	1,085	0,004	0,029	0,060	0,295	0,292	0,008
31,75	0,00	915907	39680 W	0,070	0,090	0,230	1,110	0,030	0,110	0,051	0,210	0,329	0,020
9,53	0,00	139333	41460 GM	0,160	0,000	0,000	0,750	0,000	0,000	0,021	0,000	0,032	0,160
9,53	0,00	139477	41460 GM	0,160	0,000	0,000	0,750	0,000	0,000	0,021	0,000	0,032	0,160
31,75	0,00	139481	41410 AG	0,165	0,000	0,000	0,758	0,000	0,000	0,016	0,000	0,021	0,220
31,75	0,00	139547	41410 AG	0,165	0,000	0,000	0,758	0,000	0,000	0,016	0,000	0,021	0,220
19,05	0,00	202313	41406 AA	0,071	0,046	0,019	1,085	0,004	0,029	0,060	0,295	0,292	0,008
15,88	0,00	139624	41508 G	0,160	0,000	0,000	0,650	0,000	0,000	0,021	0,000	0,023	0,142
31,75	0,00	139627	41410 AG	0,165	0,000	0,000	0,758	0,000	0,000	0,016	0,000	0,021	0,220
15,88	0,00	139776	41508 G	0,160	0,000	0,000	0,650	0,000	0,000	0,021	0,000	0,023	0,142

Características mecánicas / Mechanical properties

17/11/13

CERTIFICADO DE CALIDAD/QUALITY REPORT

De acuerdo a /Made according to:

EN 10204/DIN 50049

3.1

Nº CERTIFICADO / CERTIFICATE NR.: 47704

ALBARAN 47704
Delivery Note Nr.

CLIENTE LES ACIERS TRANSBEC (1997) LTÉE
CUSTOMER

Norma : EN 10277

Productos Calibrados de acero. Condiciones técnicas de suministro.

Norm :

Bright steel products. Technical delivery conditions.

MEDIDA	OF	COLADA	Resistencia	Lim.elástico	Alargamiento	Dureza HB	Estricción %	
Measurement		Cast Nr.	Tens. strenght N/mm2	Yield point 0,2% N/mm2	Elongation Lo=50 mm.	Hardness HB		
31,75		915907	39680 W	533,38	523,05	12,04	169,00	45,79
50,80		916489	41232 IS	515,66	509,28	16,20	178,00	53,91
50,80		916489	41232 IS	515,66	509,28	16,20	178,00	53,91
31,75		139211	41410 AG	558,02	536,07	36,40	159,00	57,29
25,40		139256	41300 AG	556,11	543,10	19,46	159,00	46,32
30,16		139297	41411 AG	551,06	525,36	37,06	165,00	59,43
19,05		202433	41406 AA	584,38	568,82	16,86	172,00	47,83
31,75		915907	39680 W	533,38	523,05	12,04	169,00	45,79
9,53		139333	41460 GM	735,60	691,90	12,70	216,00	59,96
9,53		139477	41460 GM	735,60	691,90	12,70	216,00	59,96
31,75		139481	41410 AG	558,02	536,07	36,40	159,00	57,29
31,75		139547	41410 AG	558,02	536,07	36,40	159,00	57,29
19,05		202313	41406 AA	584,38	568,82	16,86	172,00	47,83
15,88		139624	41508 G	602,29	574,24	20,18	176,00	60,19
31,75		139627	41410 AG	558,02	536,07	36,40	159,00	57,29
15,88		139776	41508 G	602,29	574,24	20,18	176,00	60,19

Calidad Superficial

DESCRIPCIÓN Description	OF	Clase EN 10277-1
12L14 HEX. ESTIRADO 31,75 (1 1/4")	915907	1
12L14 RED. ESTIRADO 50,80 (2")	916489	2
12L14 RED. ESTIRADO 50,80 (2")	916489	2
1018 RED. ESTIRADO 31,75 (1 1/4")	139211	3
12L14 RED. ESTIRADO 25,40 (1")	139256	3
1018 RED. ESTIRADO 30,16 (1 3/16")	139297	2
12L14 RED. ESTIRADO 19,05 (3/4")	202433	3
12L14 HEX. ESTIRADO 31,75 (1 1/4")	915907	1
1018 RED. ESTIRADO 9,53 (3/8")	139333	2
1018 RED. ESTIRADO 9,53 (3/8")	139477	2
1018 RED. ESTIRADO 31,75 (1 1/4")	139481	3
1018 RED. ESTIRADO 31,75 (1 1/4")	139547	3
12L14 RED. ESTIRADO 19,05 (3/4")	202313	3
1018 RED. ESTIRADO 15,88 (5/8")	139624	2
1018 RED. ESTIRADO 31,75 (1 1/4")	139627	3
1018 RED. ESTIRADO 15,88 (5/8")	139776	2



ARANA Y LUPARDO, 2
48490 UGAO-MIRAVALLS/VIZCAYA (SPAIN)
Tfno.: 946480211
Fax: 946480128
Email: calpradera@calibradospradera.es
www.calibradospradera.es

CERTIFICADO DE CALIDAD/QUALITY REPORT

De acuerdo a /Made according to:

EN 10204/DIN 50049

3.1

N° CERTIFICADO / CERTIFICATE NR.: 47704

ALBARAN 47704 Delivery Note Nr.	CLIENTE LES ACIERS TRANSBEC (1997) LTÉE CUSTOMER
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Norma : EN 10277

Productos Calibrados de acero. Condiciones técnicas de suministro.

Normi :

Bright steel products. Technical delivery conditions.

Observaciones: BARRAS DE ACERO ESTRIADAS EN FRIO SIN ALEAR

DEPARTAMENTO DE CALIDAD: Certifica que el mencionado producto cumple con las especificaciones del pedido.

QUALITY DEPARTMENT: Certify that the product fulfils the order specifications.

Fecha/Date: 08/06/2017

Firmado: Susana Fernández
Directora de Calidad



Sistema de
Gestión
ISO 9001:2008

www.tuv.com
ID: 1101-36024

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT R1.750
 DATE: 17/11/13

PO / BATCH NO.: 38311/SDD9412

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 5
 QUANTITY INSPECTED: 5
 QUANTITY REJECTED: _____

THICKNESS ORDERED: 1.750
 THICKNESS RECEIVED: 1.750
 SHEET SIZE ORDERED: _____
 SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORROSION	Y	<input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	ASTM A193
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	HEAT# 166SD9
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	MT 4140QT R1.750
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	SDD9412
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>gmk</u>	SIGNED OFF BY: _____
DATE: <u>17/11/13</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-414DQT R1.500
 DATE: 17/11/13

PO / BATCH NO.: 38311/5009411

MATERIAL CERT REC'D: Y/N
 QUANTITY RECEIVED: 9.5'
 QUANTITY INSPECTED: 9.5'
 QUANTITY REJECTED: _____

THICKNESS ORDERED: 1.500
 THICKNESS RECEIVED: 1.500
 SHEET SIZE ORDERED: _____
 SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	ASTM A193
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	HEAT# A162392
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	MT-414DQT R1.500
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	8009411
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>gmb</u> DATE: <u>17/11/13</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-RD.750

PO / BATCH NO.: 38311/S009407

DATE: 17/11/13

MATERIAL CERT REC'D: yes

THICKNESS ORDERED: .750

QUANTITY RECEIVED: 10'

THICKNESS RECEIVED: 1.00

QUANTITY INSPECTED: 10'

SHEET SIZE ORDERED: _____

QUANTITY REJECTED: _____

SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	N	
CORROSION	Y	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	N	ASTM A193
CORRECT THICKNESS	<input checked="" type="checkbox"/>	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	N	HEAT#M52573
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	N	MT-4140QT R.750
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	N	S009407
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>[Signature]</u>	SIGNED OFF BY: _____		
DATE: <u>17/11/13</u>	DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MID18.43.000W.250
 DATE: 17/11/13

PO / BATCH NO.: 38311/S009407

MATERIAL CERT REC'D: yes THICKNESS ORDERED: .250
 QUANTITY RECEIVED: 20' THICKNESS RECEIVED: .250
 QUANTITY INSPECTED: 20' SHEET SIZE ORDERED: _____
 QUANTITY REJECTED: _____ SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	HEAT# 5207971402
CORRECT MATERIAL IDENTIFICATION	(Y)	N	MID18.43.000W.250
CORRECT M# ON THE MATERIAL	(Y)	N	S009407
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>amf</u> DATE: <u>17/11/13</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M1018 R. 1.625

PO / BATCH NO.: 38311/8009409

DATE: 17/11/13

MATERIAL CERT REC'D: yes

THICKNESS ORDERED: .625

QUANTITY RECEIVED: 19'

THICKNESS RECEIVED: .625

QUANTITY INSPECTED: 19'

SHEET SIZE ORDERED: _____

QUANTITY REJECTED: _____

SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORROSION	Y	<input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	ASTM A182
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	HEAT # 139624
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	M1018 R. 1.625
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	8009409
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: _____	SIGNED OFF BY: _____
DATE: _____	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 1018-1025 ROUND BAR

SPECIFICATION: MIL-S-7097 OR ASTM A108

PART NUMBER: M1018-R/D DDD WHERE D DDD = DIAMETER IN INCHES

EG. 7/8" ROUND BAR = M1018-R0.875

TOLERANCES: PER ASTM A108 AS FOLLOWS:

SIZE	TOLERANCE
UP TO 1.5" INCL.	+0.000/-0.002
OVER 1.5" TO 2.5" INCL.	+0.000/-0.003
OVER 2.5" TO 4.0" INCL.	+0.000/-0.004
OVER 4.0" TO 6.0" INCL.	+0.000/-0.005
OVER 6.0" TO 8.0" INCL.	+0.000/-0.006

R.625

RELEASED
2012-09-24

B	REFORMAT. ADD ASTM A108. ADD TOLERANCES	CP	12.08.05
A	NEW ISSUE	DS	01.06.12
REV.	DESCRIPTION	BY	DATE
DESIGN	DS		
DRAWN	CP		
CHECKED	CP		
MFG. APPR.			
APPROVED			
DATE	12.09.05		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. M1018-R
TITLE 1018-1025 ROUND BAR

REV. B
SHEET 1 OF 1
SCALE NTS

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DATE 2012-09-24 BY 1018-R0.875

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M1018 B.375X5.00

PO / BATCH NO.: 38311/S009408

DATE: 17/11/13

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 4
 QUANTITY INSPECTED: 4
 QUANTITY REJECTED:

THICKNESS ORDERED: .375
 THICKNESS RECEIVED: .375
 SHEET SIZE ORDERED:
 SHEET SIZE RECEIVED:

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/> N	
CORROSION	Y <input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> N	
CORRECT THICKNESS	<input checked="" type="checkbox"/> N	
PHOTO REQUIRED	Y <input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> N	HEAT # 1161503
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> N	M1018 B.375X5.00
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> N	S009408
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>mf</u>	SIGNED OFF BY: <u></u>
DATE: <u>17/11/13</u>	DATE: <u></u>

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



DESIGN 	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED CP	APPROVED 	DRAWING NO. M1010-B	REV. A SHEET 1 OF 1
DATE 01.12.06		TITLE AISI 1010-1025 BAR	SCALE NTS
A	01.12.06	NEW ISSUE	

PURCHASE MATERIAL: AISI 1010-1025 OR ASTM A36/A366/A569/A570
OR CSA G40.21, 38W/44W/50W/60W/70W

PART NUMBER: M1010-B | T.TTT | x | WW.WWW | WHERE T.TTT = THICKNESS (IN INCHES)
THICK WIDTH WW.WWW = WIDTH (IN INCHES)

EG. 0.75" x 2.50" BAR = M1010-B0.750 x 02.500

375 x 5.00

RELEASED
01.12.07

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